

ABSTRACT

A composite material that is formed into basic structural panels that can be subsequently assembled into the floors, walls, roof trusses, and roofs of buildings by unskilled labor having access to basic tools is disclosed. Thus, basic shelter, low-cost houses and various other structures, such as schools, churches, clinics, and storage facilities may be constructed to address the need for such structures in economically-distressed countries with large populations. The building material for the panels is a molded polymer composite, made from either homogeneous or non-homogeneous materials. The materials consist primarily of recycled or virgin polyolefins, primarily polyethylene and polypropylene compounds with or without various additives, including glass fiber, metals and naturally-occurring materials such as rice husks, sugar cane bagasse, nut shells, talc, clay, sand and wood. Conduits and channels for electrical wiring, plumbing and ventilation may be provided and a cross-ribbed reinforcement grid may be included for strength. Vertical or horizontal rods and other strengthening materials, including fabrics may also be placed to run through the available channels formed in the composite material to enhance structural stability. Each structural panel may be provided with flanges at their edges in which there are holes that align with holes on other structural panels for fastening the structural panels together using various devices. Sealants, adhesives and flashing may be applied to the interfaces between the structural panels.